REMARKS

Applicants gratefully acknowledge Examiner Harris for courtesies extended during a telephone interview dated May 6, 2009, including co-inventor Dr. Newns. During this interview Dr. Newns explained how the claimed invention differs from the cited reference Ramesh and, indeed, involves an entirely different ferroelectric disk information storage technology that will provide much higher memory density and read/write bandwidth than conventional magnetic disk storage. The information storage capacity is also much higher than the chip-embedded memory structure of Ramesh et al. That is, the memory cell unit of Ramesh consists of a transistor plus a ferroelectric capacitor, with the information bit being stored in the capacitor.

In contrast, the claimed invention uses polarized domains within the ferroelectric data layer on the disk, the domains giving rise to an area of readable bound charges adjacent to the surface of the layer. These polarized domains are much smaller in size than the capacitors formed lithographically in Ramesh, thereby giving a much higher information storage density.

Moreover, Ramesh does not have the problem that is being addressed by the claimed invention, since its ferroelectric capacitor will store its bit of information as an aggregate of all of its domains: there is no mechanism in Ramesh to use isolated regions of charge as storage for individual bits of information.

Moreover, any mobile carriers present on the surface of the ferroelectric capacitor of Ramesh will not adversely affect the information content stored in the capacitor, since there is no need in Ramesh to attempt to read a single polarized domain as a bit of information.

In contrast, as explained during the telephone interview, the mobile surface charges in the storage disk of the present invention will mask the ability to read any information content of an underlying polarized domain.

Finally, Dr. Newns explained that the conductive layer used in the present invention is specifically selected in its characteristics to be able to provide relatively rapid lateral charge screening, preventing the relatively slow accumulation of any mobile charges on the surface of the ferroelectric data layer, while still not interfering with reading the underlying polarized domains storing the information. Thus, for example, a metal electrode used as an overlying layer in the ferroelectric capacitor of Ramesh would be so thick that, if used in the present invention, would mask the underlying polarized domains (if such ferroelectric capacitor were

to be somehow modified to be able to store information as polarized domains), thereby precluding the reading of data stored in these domains.

The claims have been amended above to clarify the points discussed during this telephone interview.

Therefore, Applicants again respectfully submit that there are features of the claimed invention that are not taught or suggested by Ramesh, and the Examiner is respectfully requested to reconsider and withdraw this rejection based on Ramesh.

FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1, 6-9, 16, and 19-26, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance, and that withdrawn claims 10-15 and new claim 27 are also in condition to be rejoined and allowed, since they are also amended to reflect allowable subject matter. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

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